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Applicants	:	Hans WESTMIJZE et al.
Serial No.	:	10/553,971
Filed	:	November 8, 2005
For	:	INCREASED POLYMERIZATION REACTOR OUTPUT USING A SPECIFIC INITIATOR SYSTEM
Examiner	:	Huhn, Richard A.
Art Unit	:	1796

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Date: March 10, 2011

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REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

In response to the Examiner's Answer mailed on January 10, 2011, Appellants submit this Reply Brief in accordance with 37 C.F.R. §41.41 in the above captioned patent application. For at least the reasons more fully set forth below, as well as the reasons more fully set forth in the "Appeal Brief", filed on December 6, 2010, the rejections of claims 1-12 should be reversed.

REMARKS

The Examiner's Answer, like the Final Office Action, appears to rely on the assertion by the Examiner that Amano teaches a polymerization process using an amount of initiator that does not cause an uncontrolled reaction and a second initiator having a half-life of 0.1 hours at the reaction temperature. The Examiner further relies on the assertion that an example in Amano teaches that the second initiator is dosed when 15% of the monomer has been polymerized and that these conditions in the process of Amano may be optimized to arrive at the claimed invention as a skilled artisan would be motivated to do so in view of the teachings in Amano to provide sufficient cooling throughout the process to maintain the polymerization temperature. In the Examiner's Answer, as in the Final Office Action, the Examiner relies on the assertion that Amano teaches that there is a well known relationship between the addition of initiator and the resulting heat of reaction from polymerization and that a reflux condenser is used to ensure sufficient cooling capacity. The Examiner therefore maintains that in view of the teachings in Amano the skilled artisan would be motivated to optimize the amounts of the two initiators in order to ensure that the reactor operates with sufficient cooling capacity.

Contrary to the Examiner's assertions in the Examiner's Answer the present invention chooses *to add less first initiator* (not more than 90% of the safely useable amount) thereby leaving room for the *addition of the second initiator at* ***an earlier stage****, i.e. within the first 10% of conversion* which may not be obtained by mere routine optimization of the process in the cited references wherein Amano chooses not to restrict the safely useable amount of the first initiator, resulting in the inability to add any second initiator before heat dissipation by the reflux condenser (i.e. after 15% conversion), which heat dissipation is necessary to safely operate the polymerization process. In particular, appellants submit that the skilled artisan would not be motivated to modify the teachings of Amano to arrive at the claimed invention nor would the skilled artisan be motivated to combine the teachings of Van Swieten et al with those in Amano and even if combined the cited references would not provide any guidance to the skilled artisan to arrive at the currently claimed invention.

In the Examiner's Answer, the Examiner maintains that Amano teaches that the problems in the prior art associated with the addition of increased amounts of the more stable initiator in the early stages of the reaction are resolved by Amano using two initiators, with the addition of the second less stable initiator in the early stage of the reaction alongside the

use of a reflux condenser to provide sufficient cooling capacity. The Examiner asserts that the teachings in Amano do not limit the addition of the second initiator to only after 15% conversion, i.e. after the start of the use of the reflux condenser. However, Appellants submit this reasoning is flawed and submit that the teachings of Amano are limited to the addition of the second initiator after 15% conversion. Nothing in the cited reference provides any guidance to the skilled artisan that such addition may safely be carried out at a lower conversions and obtain a desirable polymerization product.

Amano's paragraph 3 indeed discusses the problems associated with prior art processes. It mentions that attempts have been made in the prior art to enhance the productivity and to shorten the polymerization time. One of these attempts involved the use of larger amounts of initiator. As a matter of course, these attempts also required a higher heat dissipation capacity. However, because the use of a reflux condenser at the first stage lead to coarse particles or blocks, a reflux condenser at this stage cannot be suitably used and the heat during the first stage had to be removed by the jacket only. As a result, the heat dissipation in this prior art method was insufficient in the initial stage.

When considering the teachings of Amano in the context of the disclosure in paragraph 3 of Amano, it is clear that the problems associated with the use of a reflux condenser within the first 15% are given as a fact. It is not the problem that Amano intends to solve with the invention taught in Amano. The problem Amano intends to solve is: to increase the polymerization rate given the restrictions to the heat dissipation abilities (i.e. only jacket cooling and no reflux condenser in the first 15%). These heat dissipation restrictions are taken as a precondition in the teachings of Amano.

The solution provided by the teachings in Amano is the use the two initiators in de indicated amounts, rate, and moment of adding of the second initiator: i.e. after starting heat dissipation by the reflux condenser. This again shows that Amano does not solve the problem associated with using the reflux condenser at an early stage. Instead, the problem solved by Amano is reduction of the polymerization time, while taking into account the problems associated with an early use of the reflux condenser and take that as a precondition in the process taught therein.

Thus, contrary to the Examiner's assertions in the Examiner's Answer and Final Office Action, the 15% conversion limit referred in par. 3 will also apply to Amano's

process. This is confirmed on page 9 of Amano, which also refers to this 15% value. In summary, contrary to the Examiner's assertions Amano ***does not*** teach, suggest or provide any guidance to the skilled artisan that the second initiator, through routine optimization, can be dosed at least partially to the polymerization reaction *within a period until 10% of the monomer(s) has been polymerized,* combined with the use of a *lower amount of first initiator*. This solution cannot be deduced from Amano, alone or in combination with any other document.

As appellants submitted in their Appeal Brief it can be concluded that Amano fails to teach, suggest, or provide any guidance to the skilled artisan to modify the amounts and the timing of the addition of the first and second initiators to the polymerization process, as defined in currently claimed invention. Starting the dosing of second initiator only after 15%, when the reflux condenser is used, is an essential feature in Amano's process. One cannot simply ignore that. Moreover, the skilled person desiring the optimize Amano's process will do that within the boundaries of Amano's disclosure/teachings, but will be bound by the preconditions set by Amano. The secondary cited references fail to cure the deficiencies in the teachings of Amano even when combined, although as set forth more clearly in the Appeal Brief there is no motivation to combine Amano and Van Swieten et al.

Thus, for the reasons set forth above and the reasons more fully set forth in the Appeal Brief, the rejections of claims 1-12 should be reversed.

Respectfully submitted,

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